

## Minutes from the Midlands Craft Brewers meeting held at The Alexandra Hotel, Derby on Saturday 14<sup>th</sup> September 2013

The meeting was attended by Alan G, Alan Q, James F, Jim S, John C, Steve H, Simon J, Ray C, Russell P, David S, Mike C, Steve R, Malcolm N, Allen B, Jody E, Jim N, Karl H, Lorna W & Peter F. ( chair ) Apologies from Ian R-B, Phil S, Steve O, Gary C, Tim L, Paul B & Fraser.

The usual introductions and welcome to new members took place.

### **Beer tasting**

Seven beers were brought along including an Oatmeal Stout, two Saisons, a wheat beer, two IPA's and a Bitter. The meeting was split into five separate groups for this exercise, and after sampling the various beers feedback was given to each participant. The overall quality of the beers were generally very good and up to the high standard that we have come to expect from the group. *The recipe for most of these beers can be found towards the end pages of these minutes.*

After lunch the five groups set about formulating a recipe for a specific style of beer. The styles ( which had been previously chosen ) were as follows;

- Group (1) Ordinary Bitter
- Group (2) Dry Stout
- Group (3) Weizen
- Group (4) Fruit Beer
- Group (5) Extra Special Bitter

After completion of the exercise, each group spoke in turn about their recipe and briefly gave details about the ingredients and method.

*The recipes have been collated and published in these pages.*

After a short break to replenish our glasses the meeting continued with Peter giving a short talk on the care and cleaning of **Plate Chillers** which are becoming increasingly popular with craft brewers. A brief discussion followed and an separate information sheet is attached to these minutes.

We moved on to the subject of **Hop Deterioration on Storage** with Peter outlining suitable packaging and suggested storage temperatures. He pointed out that deterioration varied considerably amongst different hop varieties and quoted some examples.

*An information sheet is attached here for the assistance of members.*

Peter mentioned briefly that commercial brewers determine hop ageing by using a factor called a "Hop Storage index." He thought this complex and beyond general

discussion here but there is an attached document for any interested members.

### **Forthcoming Events and Announcements.**

Peter ( Treasurer ) informed the group that the current balance of the MCB funds stood at £186.22 and that £39.00 had been collected at the Chesterfield meeting which included a surplus from the food takings.

Steve H announced that there would be a workshop held at his house on Saturday 19<sup>th</sup> October, this would cover adapting stainless steel tanks for brewing, making copper manifolds / sparge arms / counter-flow chillers etc. Members interested in attending were asked to contact Steve as soon as possible. Note; this is not intended to be a “drinking session” and it is suggested that members bring their own food and maybe a beer to swap and have with their lunch.

Allan announced that the Xmas social was to take place in Derby on Saturday 14<sup>th</sup> December. Food was discussed, however as there were several pubs serving food it was decided to eat when convenient rather than arrange a set meal or buffet.

David reminded the group that the next meeting would take place at The Crown, Nuneaton on Saturday 16<sup>th</sup> November. He said that if any member wished to discuss a particular subject he would make a slot on the agenda available.

### **Any other Business**

Allan said that a proposed meeting between the MCB and CCB ( Cambridge ) groups would not be going forward, this was because the likely numbers attending would not be worth it, particularly regarding the expense of obtaining a guest speaker.

However a proposal for a joint meeting between the MCB and the NCB ( Northern Craft Brewers ) appeared to be popular and it was likely that such a meeting could be arranged in Sheffield some time in the autumn of next year.

Peter related an experience with a new brand of dried yeasts called “Mango Jack” which had not been particularly successful. He also mentioned that a CCB member had also tried one of the strains and wasn't too impressed although he had achieved rather better results than Peter. However one member mentioned that from researching the web forums, the feedback had been quite mixed with some brewers reporting very good results.

There being no other business the meeting closed at 16:15

## **Plate Chillers – Care and Cleaning**

These items have in recent times become popular with craft brewers, their high efficiency and compact dimensions making them extremely useful for cooling large amounts of hot wort quickly and effectively. They can be obtained from e Bay and other sources at reasonable prices and are well worth considering if you are planning to upgrade or expand your home brewery. They are best described as a scaled down equivalent of the para-flow chillers found in all commercial breweries large and small.

Whilst appreciating their ease of use they really do need more care taken in cleaning and sterilising than say an immersion cooler, which is effectively sterilised by the near boiling wort in which it is immersed. The very few brewery infections that now occur are usually tracked down to bacteria in the para-flow chiller which must be kept scrupulously clean when in use. Below is a suggested procedure which if followed should ensure trouble free operation.

### **Cleaning after use**

As soon as practical immerse or fill the wort side with warm water and just leave to soak. This is particularly important if you need to leave the chiller any length of time before cleaning and will prevent cold-break particles adhering to the plates making them increasingly difficult to remove later. For cleaning, a 3% solution of caustic soda at 80C seems most effective, this can be performed via a re-circulation pump if you have one, if not by filling the wort side of the chiller, emptying and re-filling several times and finally leaving to soak for a while. *Note; Caustic Soda works better when dissolved in soft water as hard water will throw a precipitate, also remember to use strong rubber gloves and goggles for eye protection!* For those who prefer an alternative to caustic soda, an alkaline, non-caustic substance which incorporates a chlorine donor can be used such as Murphy's "Cleaner & Steriliser," this is best used at higher temperatures to ensure complete removal of protein particles. When cleaning is completed, the chiller should be rinsed out several times with hot water and left to dry out in a warm place till needed. It can if desired be given a final rinse with a disinfectant such as Murphy's "Kilamic" ( also available as Brupaks "Stayclean" ) which will not corrode the stainless steel plates or the copper gaskets that seal them.

### **Sterilisation before use**

It's best not to take chances here and a brief soak in Star San or Peracetic Acid are suitable precautions. Note that these compounds are both acidic and should not be used as a "final rinse" as they will corrode the metals if left for any length of time.

This will be a useful protection against any gram positive bacteria present which can be resistant to the chlorinated alkaline cleaner mentioned earlier. Alternatively when in a hurry I've flushed the chiller out a few times with a large kettle of boiling water.

### **Heat Sterilisation**

Baking the chiller in a domestic oven at around 160C for three hours is another way of ensuring sterility, particularly if you have cause to believe that despite the usual precautions there may be bacteria or wild yeast lurking somewhere. But it should only be necessary in extreme circumstances; if you have observed the above precautions problems should not occur.

### **Summary of points to note**

- ✦ soak chiller in warm water immediately after use.
- ✦ clean with hot caustic soda or proprietary cleaner / steriliser
- ✦ rinse out several times with hot water
- ✦ leave chiller to dry out in warm place
- ✦ don't use acidic compounds for final rinse, this will cause corrosion
- ✦ sterilise *before* use with acidic compound or boiling water
- ✦ wear suitable protection when handling caustic soda or Peracetic Acid
- ✦ consider heat sterilisation if infection is suspected

## **Hop Deterioration on Storage**

I think that most of us are aware of this problem, however there are several misconceptions and this is an attempt both to simplify the subject and use best practice at home to minimise any loss. Deterioration of hops results in loss of desirable aromas and reduced alpha acids ( bittering levels ) whilst off flavours can also develop in extreme conditions of poor storage.

### **Some factors that affect deterioration;**

- ⤴ Type of packaging used and the number of times hops have been re-packaged for distribution.
- ⤴ The particular hop variety
- ⤴ Storage temperature
- ⤴ The number of times that the pack has been opened and re-sealed

### **Packaging**

Whole hops are supplied from the hop merchant in 5kg bales which are ideally re-packaged for craft brewers into convenient sizes of 100g / 250g / 1kg in vacuum sealed foil bags. The best dealers do this as quickly as possible once the bale has been opened and store the bags under refrigeration until despatched. However some of us purchase whole bales ourselves, these are then split, re-packaged and distributed to members, here care needs to be taken to ensure that the type of packaging is suitable. Plastic bags are most unsuitable as oxygen will permeate through the bag and rapid deterioration will result irrespective of storage temperature. In general the least number of times the pack is opened and re-sealed the better.

### **Storage characteristics of particular hop varieties**

Individual varieties will vary considerably with ageing so it's useful to know a little more about their storage characteristics. Rather than compile a long list I'll instead mention some of the more popular hops which I know members use.

- ⤴ Bramling X        --- Poor
- ⤴ Cascade ( US ) --- Very poor
- ⤴ Challenger        --- Excellent
- ⤴ Celeia            --- Good
- ⤴ Citra              --- Fair
- ⤴ Fuggle            --- Fair
- ⤴ EK Golding        --- Very good
- ⤴ Northdown        --- Fair
- ⤴ Saaz                --- Very poor

## **Storage Temperature**

Ideally hops should be stored at 0C in a fridge or alternatively in a freezer. This will minimise / delay ageing, particularly if the hops have been packaged properly.

## **Opening and re-sealing packs.**

Once a pack has been opened, air is admitted which will accelerate deterioration. We can minimise this by careful handling, for example pressing excess air out of the bag before resealing the foil bag with packaging or gaffa tape which will help to keep out air.

## **Calculating the loss of alpha acids with aged hops.**

This is a complicated subject as commercial brewers use a “hop storage index factor” ( HSI ) and for anyone interested, the relevant information complete with charts will be attached to the meeting minutes.

## **How this works in practical terms**

As an example, using Challenger hops which have been packaged and stored correctly, minimal if any loss in bittering or aroma will take place for a year or two. However US Cascade hops even if stored correctly will lose a significant proportion of alpha acids over a similar period, this needs to be taken into account by increasing the amount used when stored for extended periods.

## **Some points to remember**

- ⤴ Store hops in foil bags which are ideally vacuum sealed.
- ⤴ Minimise the number of times the packs are opened and re-sealed
- ⤴ Store hops in the freezer or at least in the fridge
- ⤴ If hops with a known poor storage factor are kept for more than 6 months, take this into account when formulating recipes by proportionately increasing the amount used over extended storage periods.
- ⤴ This information applies to both whole hops and Type 90 pellets.
- ⤴ Type 100 hops ( compressed into 14g bungs ) have slightly better storage qualities assuming the other factors being equal.

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	<b>Group 1</b>	<b>RECIPE NAME</b>	<b>1040 Bitter</b>		
Style, description and any background information about the beer:					
Bitter (BJCP Style Guidelines 8A)					
<b>ORIGINAL GRAVITY =</b>			<b>1040</b>		
<b>Grist 75% efficiency</b>			<b>Weight lbs</b>	<b>Ratio %</b>	
MO Pale ale malt			7.05	78.00%	
Crystal			0.37	3.50%	
Munich			0.71	8.00%	
Aromatic			0.67	7.00%	
Flaked Barley			0.4	3.50%	
<b>TOTAL GRIST</b>			<b>9.2</b>		
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
None					
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
Fuggles			5.56%	50	60
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
Goldings			15	15	
Goldings			30	0	
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>		<b>COMMENTS</b>	
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		as normal			
BITTERNESS UNITS (IBU)		36		estimated	
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		66		for 90 minutes	
BOIL TIME (MINS)		60			
FINISHING GRAVITY (AG)					
ALCOHOL (ABV)					
COLOUR (EBC)					
Yeast Variety		S04 or WLP 013			
QUANTITY OF YEAST (GRAMS, DRY OR BARM)					
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	Group 2	<b>RECIPE NAME</b>	Dry Stout		
Style, description and any background information about the beer:					
Roughly to the BJCP Style guidelines ( 13A )					
<b>ORIGINAL GRAVITY =</b>			<b>1043</b>		
<b>GRIST (Malt Extraction Efficiency Calculated @ 85%)</b>			<b>Weight (gm)</b>	<b>Ratio %</b>	
MO Pale ale malt			3750	82.00%	
Flaked Barley			367	8.00%	
Chocolate malt			43	1.00%	
Black malt			92	2.00%	
Roast Barley			320	7.00%	
<b>TOTAL GRIST</b>			<b>4572</b>		
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
None					
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
Challenger			8.50%	36	75
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>	<b>COMMENTS</b>		
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		as normal			
BITTERNESS UNITS (IBU)		36	estimated		
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		65	for 90 minutes		
BOIL TIME (MINS)		90			
FINISHING GRAVITY (AG)		1.008	estimated		
ALCOHOL (ABV)		4.50%	estimated		
COLOUR (EBC)					
YEAST VARIETY		Nottingham	dried		
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11.5g re-hydrated			
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					



## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	<b>Group 3</b>	<b>RECIPE NAME</b>	<b>German Wheat</b>		
Style, description and any background information about the beer:					
Roughly to the BJCP Style guidelines ( 15A )					
<b>ORIGINAL GRAVITY =</b>			<b>1048</b>		
<b>GRIST (Malt Extraction Efficiency Calculated @ 75%)</b>			<b>Weight (gm)</b>	<b>Ratio %</b>	
MO Pale ale malt				30.00%	
Wheat Malt				65.00%	
Oats				5.00%	
<b>TOTAL GRIST</b>			<b>0</b>	<b>100%</b>	
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
None					
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
Saaz					75
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
Saaz (at same weight as used for bittering)				0	
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>	<b>COMMENTS</b>		
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		as normal	Batch to be split, normal and 2x		
BITTERNESS UNITS (IBU)		12			
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		66	for 90 minutes		
BOIL TIME (MINS)		75			
FINISHING GRAVITY (AG)		1012	estimated		
ALCOHOL (ABV)		4.90%	estimated		
COLOUR (EBC)					
YEAST VARIETY		Danstar Munich	dried		
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11.5g re-hydrated			
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

BREWER:	Group 4	RECIPE NAME	Blackberry Wheat Beer		
Style, description and any background information about the beer:					
2.3kg Blackberries + 230g cane sugar briefly boiled in water added as a puree after racking to secondary FV.					
ORIGINAL GRAVITY =			1045		
GRIST (Malt Extraction Efficiency Calculated @ 85%)			Weight (gm)	Ratio %	
MO Pale ale malt			2000	50.00%	
Wheat malt			2000	50.00%	
TOTAL GRIST			4000		
Fruit / Sugar			Weight (gm)		
Blackberries + 10% cane sugar			2530		
HOPS FOR START OF BOIL		FWH /YES	Alpha acid	Weight (gm)	Time (Min)
Saaz			5.00%	40	60
HOPS FOR FLAVOUR AND/OR AROMA			Weight (gm)	Time (Min)	
ADDITIONAL INFORMATION		DETAILS		COMMENTS	
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		as normal			
BITTERNESS UNITS (IBU)		19			
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		65		for 75 minutes	
BOIL TIME (MINS)		75		60 mins with hops	
FINISHING GRAVITY (AG)		1.011		estimated	
ALCOHOL (ABV)		4.40%			
COLOUR (EBC)		6			
YEAST VARIETY		Danstar Munich		dried	
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11g re-hydrated			
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

BREWER:	Group 5	RECIPE NAME	Fukker Extra Special Bitter		
Style, description and any background information about the beer:					
Roughly to the BJCP Style guidelines ( Category 8C )					
ORIGINAL GRAVITY =			1059		
GRIST (Malt Extraction Efficiency Calculated @ 85%)			Weight (gm)	Ratio %	
MO Pale ale malt			5700	94.40%	
Crystal malt ( 140 EBC )			340	5.60%	
TOTAL GRIST			6040		
COPPER SUGARS			Weight (gm)		
None					
HOPS FOR START OF BOIL		FWH /YES	Alpha acid	Weight (gm)	Time (Min)
Target			11.00%	27	60
HOPS FOR FLAVOUR AND/OR AROMA			Weight (gm)	Time (Min)	
Challenger added after chilling wort for 15 minutes			8.00%	15	5
Goldings " "			5.00%	15	5
Northern Brewer " "			9.00%	15	5
Target			11.00%	20	dry-hops
ADDITIONAL INFORMATION		DETAILS		COMMENTS	
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS					
BITTERNESS UNITS (IBU)		31			
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		65		for 90 minutes	
BOIL TIME (MINS)		90			
FINISHING GRAVITY (AG)		1.019		estimated	
ALCOHOL (ABV)		5.20%		estimated	
COLOUR (EBC)					
YEAST VARIETY		WLP002		start fermentation @ 17C	
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		400ml starter			
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

BREWER:	Jim S	RECIPE NAME	Bitter		
Style, description and any background information about the beer:					
ORIGINAL GRAVITY =			1.042		
GRIST (Malt Extraction Efficiency Calculated @ 85%)			Weight (gm)	Ratio %	
Pale ale malt			3175	71.00%	
Wheat malt			1305	29.00%	
TOTAL GRIST			4480		
COPPER SUGARS			Weight (gm)		
None					
HOPS FOR START OF BOIL		FWH /YES	Alpha acid	Weight (gm)	Time (Min)
Challenger			5.50%	80	60
HOPS FOR FLAVOUR AND/OR AROMA			Weight (gm)	Time (Min)	
Challenger			5.50%	20	10
ADDITIONAL INFORMATION		DETAILS	COMMENTS		
BREW DATE		30/06/2013			
BATCH SIZE (LITRE)		27			
PRIMING SUGARS		as normal			
BITTERNESS UNITS (IBU)		40	estimated		
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)			overnight		
BOIL TIME (MINS)		60			
FINISHING GRAVITY (AG)		1.008			
ALCOHOL (ABV)		4.50%			
COLOUR (EBC)		7			
YEAST VARIETY		Nottingham	dried		
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11.5g			
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)		1.008			

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	John C	<b>RECIPE NAME</b>	Ness		
Style, description and any background information about the beer:					
Wheat Beer					
<b>ORIGINAL GRAVITY =</b>			<b>1050</b>		
<b>GRIST (Malt Extraction Efficiency Calculated @ 85%)</b>			<b>Weight (gm)</b>	<b>Ratio %</b>	
MO Pale ale malt			2760		
Wheat malt			1840		
Torrefied wheat			100		
Flaked Oats			360		
<b>TOTAL GRIST</b>			<b>5060</b>		
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
None					
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
Saaz				17	60
Nelsin Sauvín				12	60
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
Saaz			30	15	
Nelson Sauvín			10	15	
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>		<b>COMMENTS</b>	
BREW DATE		19/06/2013			
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		1/2 tsp per bottle			
BITTERNESS UNITS (IBU)		35		estimated	
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		66.5		105 minutes	
BOIL TIME (MINS)		60			
FINISHING GRAVITY (AG)		1.011			
ALCOHOL (ABV)		5.20%			
COLOUR (EBC)					
YEAST VARIETY		US05		dried	
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11.5g re-hydrated			
DATE RACKED TO CASK/BOTTLE		26/06/2013			
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

BREWER:	Malcolm	RECIPE NAME	Blackcoat Stout
Style, description and any background information about the beer:			
Oatmeal Stout			
ORIGINAL GRAVITY =		1045	
GRIST (Malt Extraction Efficiency Calculated @ 85%)		Weight (gm)	Ratio %
Pale ale malt		3600	77.30%
Flaked Oats		300	6.40%
Chocolate malt ( 550 EBC )		300	6.40%
Crystal malt ( 130 EBC )		200	4.30%
Carafa Special Type 3 ( 1300 EBC )		250	5.40%
TOTAL GRIST		4650	
		Weight (gm)	
Licorice root ( added to grist )		10	0.2%
HOPS FOR START OF BOIL		Alpha acid	Weight (gm)
Phoenix		13.30%	21
HOPS FOR FLAVOUR AND/OR AROMA		Weight (gm)	Time (Min)
ADDITIONAL INFORMATION		DETAILS	COMMENTS
BREW DATE			
BATCH SIZE (LITRE)		23	
PRIMING SUGARS		not specified	
BITTERNESS UNITS (IBU)		31.5	estimated
ALPHA ACID UNITS			
MASH TEMPERATURE (°C)			
BOIL TIME (MINS)			
FINISHING GRAVITY (AG)		1010	
ALCOHOL (ABV)		4.60%	
COLOUR (EBC)		175	
YEAST VARIETY		S04	dried
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11.5g	
DATE RACKED TO CASK/BOTTLE			
FINAL CASKING/BOTTLING GRAVITY (FG)		1010	

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	Simon	<b>RECIPE NAME</b>	Trois Ferment Saison		
Style, description and any background information about the beer:					
Roughly to the BJCP Style guidelines ( Category 16C )					
<b>ORIGINAL GRAVITY =</b>			<b>1.048</b>		
<b>GRIST (Malt Extraction Efficiency Calculated @ 85%)</b>			<b>Weight (gm)</b>	<b>Ratio %</b>	
Pilsner malt			3000	75.00%	
Flaked wheat			500	12.50%	
<b>TOTAL GRIST</b>			<b>3500</b>		
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
500g Amber Candi sugar			500	12.5%	
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
First Gold			8.10%	15	90
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
First Gold			8.10%	55	5
First Gold			8.10%	30	0
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>		<b>COMMENTS</b>	
BREW DATE					
BATCH SIZE (LITRE)		23			
PRIMING SUGARS		yes			
BITTERNESS UNITS (IBU)		23.8			
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)					
BOIL TIME (MINS)		90			
FINISHING GRAVITY (AG)		1.008			
ALCOHOL (ABV)		5.20%			
COLOUR (EBC)		19.5			
YEAST VARIETY		WLP644		Brett Bruxellis Trois	
QUANTITY OF YEAST (GRAMS, DRY OR BARM)					
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)					

## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

BREWER:	Russell	RECIPE NAME	Saison		
Style, description and any background information about the beer:					
Roughly to the BJCP Style guidelines ( Category 16C )      Brewed for the MCB Saison Comparison March 2013					
ORIGINAL GRAVITY =			1.064		
GRIST (Malt Extraction Efficiency Calculated @ 85%)			Weight (gm)	Ratio %	
Pilsner malt			4330		
Wheat malt			430		
Munich malt			450		
TOTAL GRIST			5210		
COPPER SUGARS			Weight (gm)		
white cane sugar			340		
HOPS FOR START OF BOIL		FWH /YES	Alpha acid	Weight (gm)	Time (Min)
Hallertau Mittelfruh				55	60
HOPS FOR FLAVOUR AND/OR AROMA			Weight (gm)	Time (Min)	
Hallertau Mittelfruh			45	flame-out	
ADDITIONAL INFORMATION		DETAILS	COMMENTS		
BREW DATE		27/01/2013			
BATCH SIZE (LITRE)		20			
PRIMING SUGARS		cane sugar + honey			
BITTERNESS UNITS (IBU)		25	estimated		
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)		64	for 60 minutes		
BOIL TIME (MINS)		90			
FINISHING GRAVITY (AG)		1.003			
ALCOHOL (ABV)		8.10%			
COLOUR (EBC)					
YEAST VARIETY		Danstar Belle	dried		
QUANTITY OF YEAST (GRAMS, DRY OR BARM)		11g re-hydrated			
DATE RACKED TO CASK/BOTTLE		15/02/2013			
FINAL CASKING/BOTTLING GRAVITY (FG)		1.003			



## MIDLANDS CRAFT BREWERS

## BEER RECIPE CARD

<b>BREWER:</b>	Jim N	<b>RECIPE NAME</b>	Adoor IPA		
Style, description and any background information about the beer:					
BJCP Style guidelines ( 14A )					
<b>ORIGINAL GRAVITY =</b>			<b>1.068</b>		
<b>GRIST (Malt Extraction Efficiency Calculated @ 85%)</b>			<b>Weight (gm)</b>	<b>Ratio %</b>	
Pale ale malt			12200	100.00%	
<b>TOTAL GRIST</b>			<b>12200</b>		
<b>COPPER SUGARS</b>			<b>Weight (gm)</b>		
None					
<b>HOPS FOR START OF BOIL</b>		<b>FWH /YES</b>	<b>Alpha acid</b>	<b>Weight (gm)</b>	<b>Time (Min)</b>
Green Bullet			14.40%	28	50
Citra			14.80%	28	50
<b>HOPS FOR FLAVOUR AND/OR AROMA</b>			<b>Weight (gm)</b>	<b>Time (Min)</b>	
Green Bullet + Citra ( equal quantities )			20	15	
Green Bullet + Citra ( equal quantities )			54	10	
Green Bullet + Citra ( equal quantities )			80	0	
<b>ADDITIONAL INFORMATION</b>		<b>DETAILS</b>		<b>COMMENTS</b>	
BREW DATE					
BATCH SIZE (LITRE)		43			
PRIMING SUGARS		not specified			
BITTERNESS UNITS (IBU)		55		estimated	
ALPHA ACID UNITS					
MASH TEMPERATURE (°C)					
BOIL TIME (MINS)					
FINISHING GRAVITY (AG)		1.016			
ALCOHOL (ABV)		6.90%			
COLOUR (EBC)		11			
YEAST VARIETY		Safale S04		dried	
QUANTITY OF YEAST (GRAMS, DRY OR BARM)					
DATE RACKED TO CASK/BOTTLE					
FINAL CASKING/BOTTLING GRAVITY (FG)		1.016			



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